

IN THE CLAIMS

Please amend the claims as identified in the listing of claims provided below. The present listing of claims replaces any and all prior versions of the claims.

Listing of Claims

1. (Previously presented) An apparatus to control the rate of flow of a stream of pressurized fluid through a conduit, the apparatus comprising:
 - (i) a flow measurement device for generating an output signal proportionate to the rate of flow of said fluid there through, said flow measurement device being operatively connected to said conduit;
 - (ii) a flow control device operatively connected to said conduit downstream of said flow measurement device, said flow control device including an adjustable orifice wherein upon the opening of said orifice a portion of said stream of pressurized fluid is independently released from said conduit by said flow control device; and,
 - (iii) a controller operatively connected to said flow control device for receiving said output signal generated by said flow measurement device and for causing said adjustable orifice in said flow control device to open or close as necessary to maintain the flow of pressurized fluid as measured by said flow measurement device within pre-determined limits wherein said portion of said stream of pressurized fluid independently released from said conduit by said flow control device is injected into the work stream of a wellbore and said flow control device is part of a continuous loop fluid circuit and is adjustable to control the release of pressurized fluid from the continuous loop fluid circuit.

2. (Previously Presented) The apparatus as claimed in claim 1 wherein said flow control device includes an automatically adjustable choke or valve.
3. (Previously Presented) The apparatus as claimed in claim 1 wherein said flow measurement device includes a turbine in communication with said stream of pressurized fluid.
4. (Previously Presented) The apparatus as claimed in claim 1 wherein said flow measurement device includes a pressure sensor and said output signal comprises a pressure signal.
5. (Previously Presented) The apparatus as claimed in claim 1 wherein said flow measurement device includes a pitot tube, the output of said pitot tube operatively connected to said controller.
6. (Previously Presented) The apparatus as claimed in claim 1 wherein said flow measurement device includes a pilot pressure tube, said pilot pressure tube having a first end in communication with said conduit and a second end in communication with said controller.
7. (Previously Presented) The apparatus as claimed in claim 1 wherein said controller is a microprocessor control, said microprocessor control being programmable to automatically adjust said orifice in said flow control device in accordance with fluctuations in said output signal received from said flow measurement device to maintain the flow of fluid as measured by said flow measurement device within a pre-determined range.
8. (Cancelled)
9. (Cancelled)

10. (Previously presented) An apparatus to control the rate of flow of pressurized fluid through a conduit connected to a pump, the apparatus permitting the discharge of fluid from said conduit at a rate below the output rate of the pump, the apparatus comprising:

(i) a flow measurement device for generating an output signal proportionate to the rate of flow of said fluid there through, said flow measurement device being operatively connected to said conduit;

(ii) an adjustable flow control device for permitting a portion of said pressurized fluid to be independently released from said conduit to maintain the flow of pressurized fluid as measured by said flow measurement device within pre-determined limits, said flow control device being operatively connected to said conduit downstream of said flow measurement device wherein said portion of said stream of pressurized fluid independently released from said conduit by said flow control device is injected into the work stream of a wellbore and said flow control device is part of a continuous loop fluid circuit and is adjustable to control the release of pressurized fluid from the continuous loop fluid circuit.

11. (Previously Presented) The apparatus as claimed in claim 10 including a visual indicator for responding to said output signal generated by said flow measurement device.

12. (Previously Presented) The apparatus as claimed in claim 11 wherein said visual indicator comprises a gauge for indicating the volumetric flow of fluid as measured by said flow measurement device.

13. (Previously Presented) The apparatus as claimed in claim 10 including a controller for receiving said output signal generated by said flow measurement device, said controller being operably connected to said flow control device, said flow control device

including an adjustable orifice wherein said controller upon receiving said output signal generated by said flow measurement device causes said adjustable orifice in said flow control device to open or close as necessary to maintain the flow of pressurized fluid as measured by said flow measurement device within pre-determined limits.

14. (Previously Presented) The apparatus as claimed in claim 13 wherein said controller is a microprocessor control, said microprocessor control being programmable to adjust said flow control device to maintain the flow of fluid as measured by said flow measurement device within a pre-determined range.

15. (Previously Presented) The apparatus as claimed in claim 10 wherein said flow measurement device includes a turbine in communication with said pressurized fluid passing through said conduit.

16. (Previously Presented) The apparatus as claimed in claim 10 wherein said flow measurement device includes a pressure sensor and said output signal comprises a pressure signal.

17. (Previously Presented) The apparatus as claimed in claim 10 wherein said flow measurement device includes a pitot tube.

18. (Previously Presented) The apparatus as claimed in claim 10 including a pilot pressure control tube having a first end in communication with said conduit and a second end in communication with said flow control device, said flow control device including an orifice adjustable in response to fluctuations in fluid pressure within said pilot pressure control tube whereby adjustments to the size of said orifice alters the volume of fluid released from said

conduit by said flow control device to thereby maintain the flow of fluid as measured by said flow measurement device within pre-determined limits.

19. (Cancelled)

20. (Cancelled)

21. (Previously presented) A method of controlling the rate of flow of a stream of pressurized fluid through a conduit, the method comprising the steps of:

(i) with a flow measuring device determining the rate of flow of fluid through a portion of said conduit and generating a signal proportionate to said fluid flow rate;

(ii) directing said signal to a controller operatively connected to a flow control device, said flow control device operatively connected to said conduit downstream of said portion of said conduit and including an adjustable orifice wherein upon the opening of said orifice a portion of said stream of pressurized fluid is independently released from said conduit by said flow control device; and,

(iii) with said controller, comparing said signal to a pre-determined value and activating said flow control device to open or close said adjustable orifice as necessary to maintain the flow of pressurized fluid as measured by said flow measurement device within pre-determined limits wherein said portion of said stream of pressurized fluid independently released from said conduit by said flow control device is injected into the work stream of a wellbore and said flow control device is part of a continuous loop fluid circuit and is adjustable to control the release of pressurized fluid from the continuous loop fluid circuit.

22. (Original) The method as claimed in claim 21 wherein said step of determining the rate of flow of said fluid through said portion of said conduit includes the utilization of a turbine

placed in communication with said stream of pressurized fluid such that the rotation of said turbine results in the generation of said signal.

23. (Original) The method as claimed in claim 21 wherein said step of determining the rate of flow of said pressurized fluid through said portion of said conduit includes the measurement of the pressure of said fluid in said portion of said conduit and the generation of a proportionate pressure signal.

24. (Previously presented) The method as claimed in claim 21 wherein said controller is a microprocessor control, said method further including the step of programming said microprocessor control to automatically adjust said orifice in said flow control device in accordance with fluctuations in said signal to maintain the flow of fluid as measured by said flow measurement device within a pre-determined range.

25. (Previously presented) A method to control the rate of flow of pressurized fluid through a conduit connected to a pump, the method permitting the discharge of said fluid from said conduit at a rate below the output rate of the pump, the method comprising the steps of:

- (i) with a flow measurement device determining the rate of flow of fluid through a portion of said conduit and generating a signal proportionate to said fluid flow rate; and,
- (ii) comparing said generated signal to a pre-determined value and activating an adjustable flow control device operatively connected to said conduit, downstream of said portion of said conduit, to permit a portion of said pressurized fluid to be independently released from said conduit to maintain the flow of pressurized fluid as measured by said flow measurement device within pre-determined limits wherein said portion of said stream of pressurized fluid independently released

from said conduit by said flow control device is injected into the work stream of a wellbore and said flow control device is part of a continuous loop fluid circuit and is adjustable to control the release of pressurized fluid from the continuous loop fluid circuit.

26. (Previously presented) The method as claimed in claim 25 including the further step of directing said signal to a controller operatively connected to said adjustable flow control device, said controller upon receiving said signal causing said adjustable flow control device to open or close as necessary to maintain the flow of pressurized fluid as measured by said flow measurement device within said pre-determined limits.

27. (Previously presented) An apparatus to control the rate of flow of pressurized fluid through a conduit connected to a discharge of a pump which draws fluid from a reservoir, the apparatus permitting the discharge of fluid from the conduit at a rate below the output rate of the pump, the apparatus comprising:

- (i) a flow measurement device operatively associated with said conduit and for generating an output signal proportionate to the rate of flow of fluid through said conduit;
- (ii) an adjustable flow control device operatively connected to said pump discharge downstream of the connection of said conduit to said pump discharge, said flow control device including an adjustable orifice wherein upon the opening of said orifice a portion of the fluid from said pump discharge is independently released and injected into the work stream of a wellbore, wherein said flow control device is part of a continuous loop fluid circuit and is adjustable to control the release of pressurized fluid from the continuous loop fluid circuit.

28. (Previously presented) The apparatus as claimed in claim 27 including a controller operatively associated with said flow control device and for receiving an output signal generated by said flow measurement device, said controller causing said adjustable orifice in said flow control device to open or close as necessary to maintain the flow of fluid through said conduit within desired limits.

29. (Previously presented) An apparatus to control the rate of flow of a stream of pressurized fluid through a conduit, the apparatus comprising:

- (i) a flow measurement device for generating an output signal proportionate to the rate of flow of said fluid there through, said flow measurement device operatively associated with said conduit;
- (ii) a flow control device operatively associated with said conduit downstream of said flow measurement device, said flow control device including an adjustable orifice where upon the opening of said orifice a portion of said stream of pressurized fluid is independently released from said conduit by said flow control device, said flow control device is part of a continuous loop fluid circuit and adjustable to control the release of pressurized fluid from the continuous loop fluid circuit; and,
- (iii) a controller operatively associated with said flow control device for receiving said output signal generated by said flow measurement device and for causing said adjustable orifice to open or close as necessary to maintain the flow of pressurized fluid as measured by said flow measurement device within pre-determined limits wherein said portion of said stream of pressurized fluid independently released from said conduit by said flow control

device is injected into the work stream of a wellbore and said flow control device is part of a continuous loop fluid circuit and is adjustable to control the release of pressurized fluid from the continuous loop fluid circuit.

30. (Cancelled)

31. (Previously presented) The apparatus as claimed in claim 29 wherein said controller is a flow controller.

32. (Previously presented) A method of controlling the rate of flow of a stream of pressurized fluid through a conduit, the method comprising the steps of:

(i) with a flow measuring device determining the rate of flow of fluid through a portion of said conduit and generating a signal proportionate to said fluid flow rate;

(ii) directing said signal to a controller operatively associated with a flow control device, said flow control device operatively associated with said conduit downstream of said portion of said conduit and including an adjustable orifice where upon the opening of said orifice a portion of said stream of pressurized fluid is independently released from said conduit by said flow control device, said flow control device is part of a continuous loop fluid circuit and adjustable to control release of pressurized fluid from the continuous loop fluid circuit; and,

(iii) with said controller, comparing said signal to a pre-determined value and activating said flow control device to open or close said adjustable orifice as necessary to maintain the flow of pressurized fluid as measured by said flow measurement device within pre-determined limits wherein said portion of said stream of pressurized fluid independently released from said conduit by said flow control device is injected into the work stream of a

wellbore and said flow control device is part of a continuous loop fluid circuit and is adjustable to control the release of pressurized fluid from the continuous loop fluid circuit.

33. (Cancelled)

34. (Previously presented) The method as claimed in claim 32 wherein said controller is a flow controller.

35. (Cancelled)

36. (Cancelled)

37. (Previously presented) The apparatus as claimed in claim 1 wherein said controller is a flow controller.

38. (Previously presented) The apparatus as claimed in claim 10 wherein the pump and said flow control device are part of a continuous loop fluid circuit, said flow control device adjustable to control the release of pressurized fluid from the continuous loop fluid circuit.

39. (Cancelled)

40. (Previously presented) The apparatus as claimed in claim 13 wherein said controller is a flow controller.

41. (Previously presented) The method as claimed in claim 21 wherein said flow control device is part of a continuous loop fluid circuit, said method including the further step of adjusting said orifice to control the release of pressurized fluid from the continuous loop fluid circuit.

42. (Cancelled)

43. (Previously presented) The apparatus as claimed in claim 21 wherein said controller is a flow controller.

44. (Previously presented) The method as claimed in claim 25 wherein the pump and said flow control device are part of a continuous loop fluid circuit, the method including the further step of activating said flow control device to control the release of pressurized fluid from the continuous loop fluid circuit.

45. (Cancelled)

46. (Previously presented) The method as claimed in claim 26 wherein said controller is a flow controller.

47. (New) An apparatus to control the rate of flow of a stream of pressurized fluid through a conduit connected to a pump that draws fluid from a reservoir, the apparatus comprising:

(i) a flow measurement device for generating an output signal proportionate to the rate of flow of said fluid there through, said flow measurement device being operatively connected to said conduit;

(ii) a flow control device operatively connected to said conduit downstream of said flow measurement device, said flow control device including an adjustable orifice wherein upon the opening of said orifice a portion of said stream of pressurized fluid is independently released from said conduit by said flow control device; and,

(iii) a controller operatively connected to said flow control device for receiving said output signal generated by said flow measurement device and for causing said adjustable orifice in said flow control device to open or close as necessary to maintain the flow of pressurized fluid as measured by said flow measurement device within pre-determined limits wherein said portion of said stream of

pressurized fluid independently released from said conduit by said flow control device is injected into the work stream of a wellbore and said flow control device, together with the pump and reservoir, forming part of a continuous loop fluid circuit, said flow control device being adjustable to control the release of pressurized fluid from the continuous loop fluid circuit.